



COMPARATIVE ANALYSIS OF FER METHODS FOR DETECTING HUMAN BEHAVIOUR USING AI CONCEPT

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Abstract : The face is a fundamental part of the human anatomy that has the ability to express all kinds of emotions. Whenever a picture of a person is made, the main attraction of that picture is the face of that person. Whatever you say, whatever you think, your eyes reflect it. This is the reason why your eyes are an important part of body language and based on these, what is going on in your mind can be understood. Facial recognition technology is actually a part of biometric technology that helps a person to identify him by his face. People also recognize it as Biometric Artificial Intelligence Base Application, which is used to identify a person according to the shape of his eye retina, nose, face. Facial recognition system is used to identify people in a photo, video or real time. Facial recognition technology is considered part of biometrics, the measurement of biological data by equipment or software, similar to fingerprint scanning and eye/iris scanning systems. Computers use facial recognition software to identify or verify a person by mapping the facial features and dimensions and comparing that information with a vast database of faces. Various facial expression recognition expression (FER) methods available which is good it cannot say that. So this paper present comparative analysis of various FER methods using AI concept .

Keywords : AI ,face matching, FER , Actual face data(AFA) , Facial Unites (FU) , Emotion expression

I. INTRODUCTION

Body language refers to the nonverbal cues we use to communicate. According to experts, these nonverbal signals make up a large part of daily communication. From our facial expressions to the movements of our bodies, things we don't say can still convey an amount of information. It has been suggested that body

language may account for between 50 percent and 70 percent of all language. Understanding body language is important, but it's also important to pay attention to other cues as context. In many cases, you should look at the cues as a group rather than focusing on a single action.

Here's what to look for when you're trying to interpret body language. Think of a moment that a person is able to express with just one facial expression. A smile can indicate approval or happiness. A frown can indicate disapproval or sadness. In some cases, our facial expressions can reveal our true feelings about a particular situation. While you say you are feeling fine, the look on your face can tell people otherwise.

II. PROBLEM FORMULATION

Facial recognition is not easy task some common problem arise this is facial recognition limitations . While face recognition programs can use different measurements and types of scans to detect and identify faces, there are limitations. Poor resolution images and poor lighting can reduce the accuracy of face-scanning results. Different angles and facial expressions, even a simple smile, can present challenges for a face matching system. Facial recognition loses accuracy when the person covers part of the face, such as glasses, hats, scarves, or hair styles. Makeup and facial hair make it difficult to locate the face.

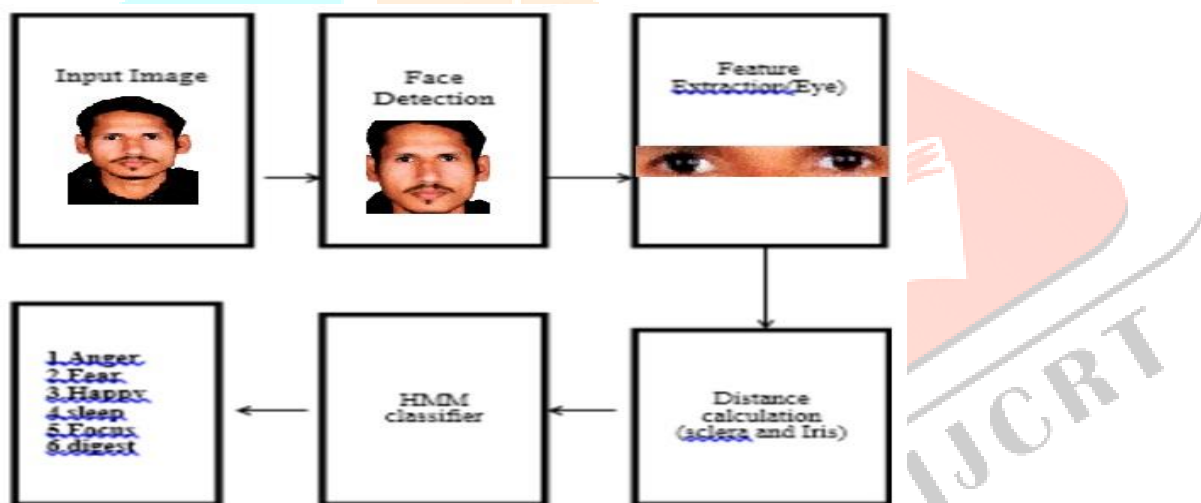
III. FER METHODS

Use facial recognition in smart devices and apps .Facial recognition is a growing part of our daily lives through tools and applications. For example, the Facebook facial recognition system, DeepFace, can recognize human faces in digital pictures with a 97 percent accuracy rate. And Apple has added a facial recognition feature called Face ID to the iPhone X. Face ID is expected to replace Touch ID, Apple's fingerprint scanning feature, giving users the option of facial login to unlock and use their iPhone X. As the first Smartphone with a built-in facial recognition feature, Apple's iPhone X with Face ID is a good example to explore how facial recognition can work on our everyday devices. Face ID uses depth perception and infrared sensors to make sure the camera is scanning your real face and not a photo or 3D model.



Emotion Expression

The system also needs to open your eyes to prevent someone else from unlocking and accessing your phone if you are asleep or unconscious. Face ID also stores a mathematical representation of your face scan in a secure location on the device to prevent access to your facial recognition scan photo and potential data breaches that would leave this data to hackers because it cannot be copied. Occurs on or stored on Apple's servers. Although Apple has provided some information on the limitations of the Face ID feature.



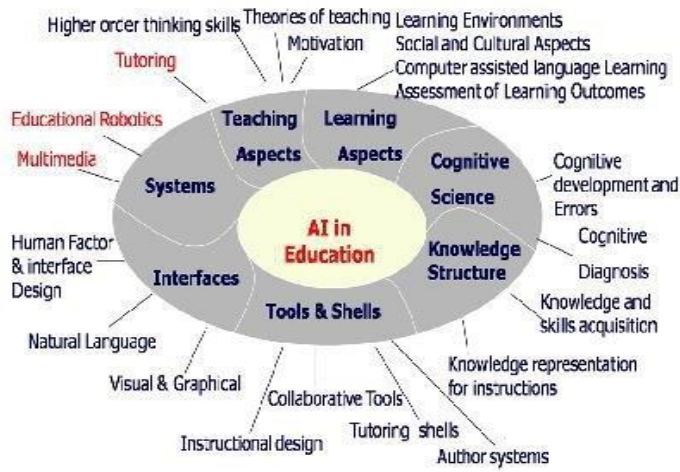
FER through DCM

Hybrid mathematical Formula : This formula include combination of facial unite . its depend on various emotion activity analysis.

$$\text{Facial Unit Expressions Type} = [(\Sigma EAUn + \Sigma LSUn + \Sigma NCUn)] * 100/100 [1]$$

IV. AI SUPPORTS FOR HUMAN SOCIAL ACTIVIT

These digital platforms that use AI to learn, test and provide feedback identify gaps in knowledge and learn new topics when appropriate. The machines are capable of using multiple choice tests effectively and AI has a high potential to create a more efficient enrollment and admissions process. AI assists as needed in learning and teaching through efficiency and personalization. The idea of customizing the curriculum based on each student's needs is simply possible thanks to AI-powered machines. It helps in learning based on the particular needs of an individual through different levels of learning. AI grading can save time for assignments and simplifies the process by providing techniques for how to close learning gaps.

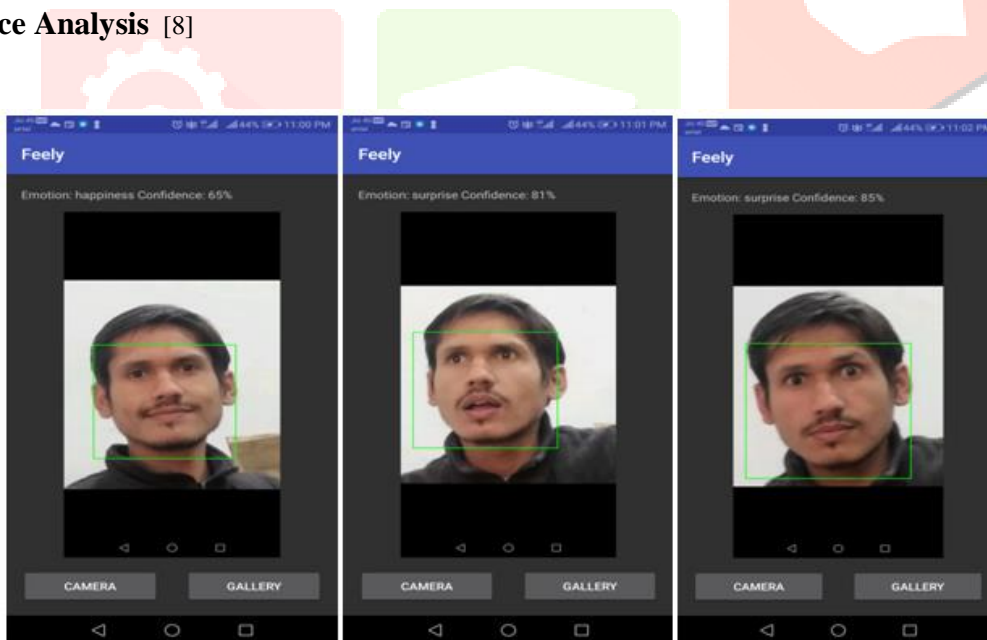


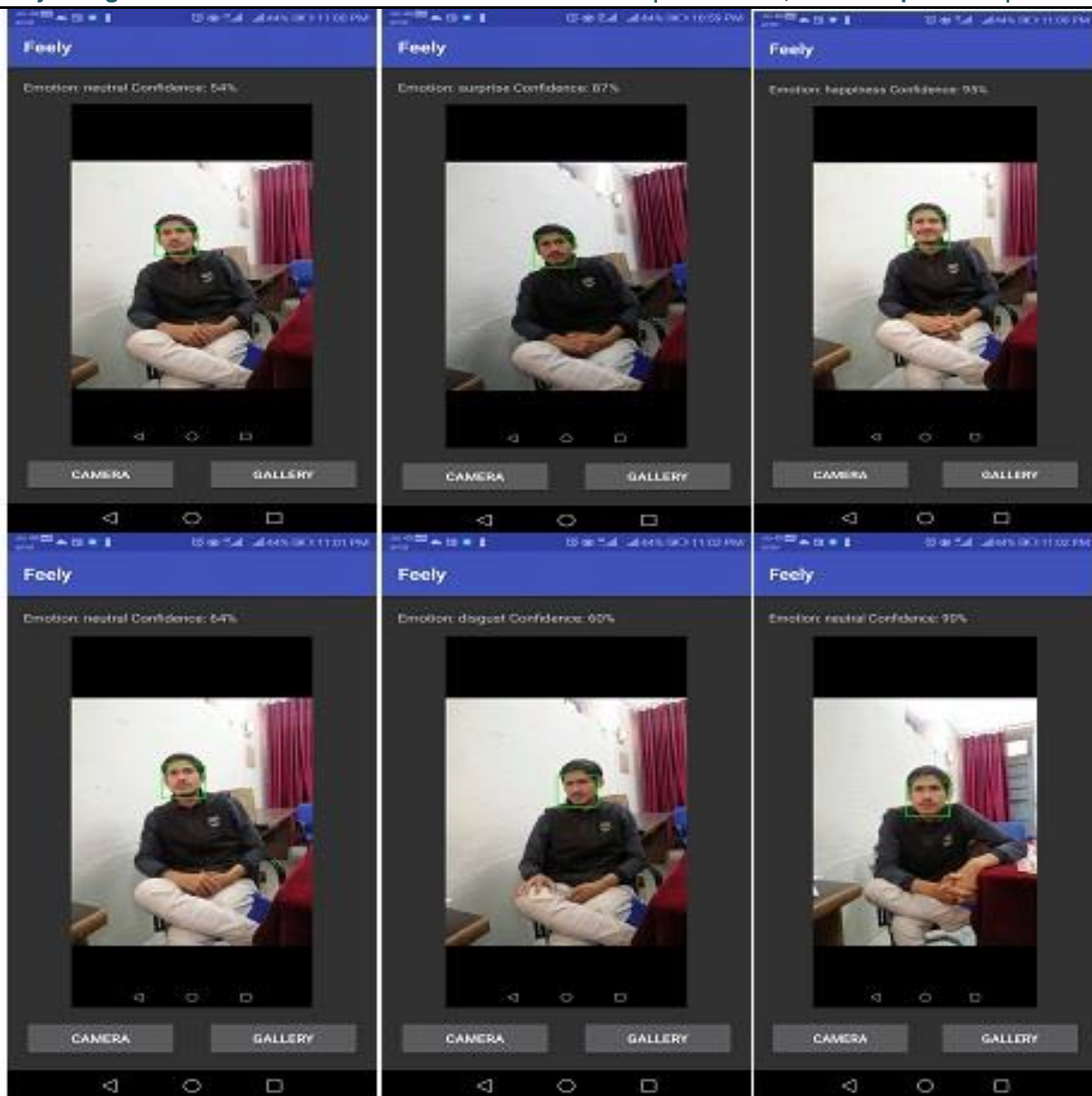
AI in Deferent Area [4]

V. PRACTICAL WORK



Face Analysis [8]





Using AI Software express emotion

Here show that deifferent picture which is related to defferent emotion expression . in which defeerent facial expression show which express human behaviour. Using felly software show the defferent emotion . in this practcal use AFA (Actual Facial Data) .

Conclusion : Facial recognition technology is more than a simple face scanner or face match program. Facial recognition systems use a number of measurements and technologies to scan faces, including thermal imaging, 3D face mapping, listing unique features (also called landmarks), analysis of the geometric proportions of facial features, Distance mapping between key facial features, and The surface texture of the skin is analyzed. Facial recognition software is used in a variety of ways, but mostly for security and law enforcement purposes. Airports use facial recognition software in a few different ways, such as scanning the

faces of passengers suspected of criminals or terrorists on watch lists and comparing passport photos with faces in person to confirm identity. Law enforcement uses facial recognition software to identify and apprehend people who have committed crimes. Many states use facial recognition software to prevent obtaining fake ID cards or driver's licenses. Some foreign governments have even used facial recognition technology to crack down on voter fraud

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